

WHAT IS CLAIMED IS:

1. A transmitter system having a plurality of channels associated therewith, said system comprising:

an antenna having a plurality of transmit signals associated therewith for radiation of at least one output of a plurality of modulation outputs of a transmitter wherein said plurality of transmit signals combine in free space to form a plurality of variable size beams in a radiation pattern;

means for splitting each of said plurality of modulation transmitter outputs into signal components;

means for selectively providing select ones of said modulation transmitter output signal components to one or more of said transmit signals, wherein said selectively providing means includes a plurality of independently operable switching means, wherein each of said plurality of independently operable switching means is assigned to a particular channel of said plurality of channels; and

means for adaptively altering an attribute of ones of said signal components prior to providing to said transmit signals, wherein a size of a beam of said plurality of variable size beams is at least in part defined as a function of a relative difference of said attribute of said signal components as provided to said transmit signals.

2. The system of claim 1, wherein said transmitter is a CDMA transmitter and said plurality of channels are a plurality of CDMA channels.

3. The system of claim 1, wherein said attribute is a phase.

4. The system of claim 1, wherein said attribute is an amplitude.

5. The system of claim 1, wherein said means for adaptively altering is part of an adaptive array circuitry.

6. The system of claim 1, wherein said means for selectively providing is part of an adaptive array circuitry.

7. The system of claim 1, wherein an azimuthal size of each of said variable size beams is a function of a phase differential of signal components as provided to ones of said transmit signals, wherein said phase differential is provided by said means for adaptively altering.

8. The system of claim 1, wherein a longitudinal size of each of said variable size beams is a function of an amplitude differential of signal components as provided to ones of said transmit signals, wherein said amplitude differential is provided by said means for adaptively altering.

9. The system of claim 1, wherein said means for adaptively altering is operable for amplitude adjusting said signal components as provided to ones of said plurality of transmit signals, wherein amplitude adjustment of said signal components of ones of said plurality of transmit signals is operable in part to adjust a longitudinal size of at least a portion of a variable size beam of said plurality of variable size beams.

10. The system of claim 1, wherein said means for adaptively altering is operable for phase adjusting said signal components as provided to ones of said plurality of transmit signals, wherein phase adjustment of said signal components of ones of said plurality of transmit signals is operable in part to adjust an azimuthal size of at least a portion of a
5 variable size beam of said plurality of variable size beams.

11. The system of claim 1, further comprising:
means for independently converting each of said transmit signals to an analog signal.

12. The system of claim 1, further comprising:
means for independently converting each of said transmit signals from an intermediate frequency to a preselected radio frequency.

13. The system of claim 1, further comprising:
means for controlling said selectively providing means, wherein said controlling means provides a control signal to each of said plurality of independently operable switching means to allow each of said modulation transmitter outputs to pass to select ones of said
5 transmit signals.

14. The system of claim 13, wherein said select ones of said transmit signals are selected in part based on channel search data associated with ones of a plurality of receive signals.

15. The system of claim 14, wherein said channel search data is provided by a channel element controller in communication with said controlling means.

16. The system of claim 13, wherein said select ones of said transmit signals are selected in part based on a comparison of measurements of a signal interference ratio of at least a portion of ones of a plurality of receive signals.

17. The system of claim 16, wherein said measurements of said signal interference ratio is provided by a channel element controller in communication with said controlling means.

18. The system of claim 13, wherein said means for controlling substantially automatically controls said means for adaptively altering to provide dynamic size adjustment of ones of said plurality of variable size beams.

19. The system of claim 1, further comprising:
means for substantially automatically controlling said means for adaptively altering to provide dynamic size adjustment of ones of said plurality of variable-size beams.

20. A CDMA receiver system having a plurality of CDMA channels associated therewith, said system comprising:

a multibeam antenna for providing a plurality of variable size beams in a radiation pattern having a plurality of beam receive signals associated therewith;

5 a CDMA receiver, wherein said CDMA receiver includes a plurality of demodulation inputs;

a switch bank for selectively providing signal components of select ones of said plurality of receive signals to one or more of said plurality of demodulation inputs, wherein said switch bank includes a plurality of independently operable switching circuits, wherein each of said plurality of independently operable switching circuits is assigned to a different channel of said plurality of CDMA channels; and

means for adaptively altering an attribute of select ones of said signal components of select ones of said receive signals prior to providing to said demodulation inputs, wherein a relative difference of said attribute of said signal components of ones of said receive signals at least in part defines a beam of said plurality of variable size beams.

21. The system of claim 20, wherein said means for adaptively altering is part of an adaptive array circuitry.

22. The system of claim 20, wherein said switch bank is part of an adaptive array circuitry.

23. The system of claim 20, wherein said switch bank is a baseband receive switch bank.

24. The system of claim 20, wherein said attribute is a phase.

25. The system of claim 20, wherein said attribute is an amplitude.
26. The system of claim 20, wherein said means for adaptively altering comprises phase adjusting circuitry for adjusting a phase of said signal components of ones of said receive signals.
27. The system of claim 20, wherein said means for adaptively altering comprises amplitude adjusting circuitry for adjusting an amplitude of said signal components of ones of said receive signals.
28. The system of claim 20, wherein ones of said plurality of independently operable switching circuits of said switch bank comprise a digital switch multiplexer.
29. The system of claim 28, wherein said digital switch multiplexers are each coupled to a different channel element of said CDMA receiver.
30. The system of claim 20, wherein an azimuthal size of each of said variable size beams is a function of a phase differential of signal components of ones of said receive signals, wherein said phase differential is provided by said means for adaptively altering.
31. The system of claim 20, wherein each of said plurality of independently operable switching circuits can access each of said plurality of receive signals.

32. The system of claim 20, further comprising:

means for controlling said switch bank, wherein said controlling means provides a control signal to each of said plurality of independently operable switching circuits to allow select ones of said receive signals to pass to a demodulation input of said plurality of demodulation inputs.

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33. The system of claim 20, further comprising:

means for independently converting each of said receive signals from a received radio frequency to a preselected intermediate frequency.

34. The system of claim 20, further comprising:

means for independently converting each of said receive signals from an analog signal to a digital signal.

35. A method for utilizing a multi-beam antenna with a CDMA base transceiver station having a plurality of CDMA channels associated therewith, for providing a plurality of variable size beams in a radiation pattern, said method comprising the steps of:

providing a plurality of receive signals for input into a demodulation receiver having a plurality of inputs;

providing a plurality of transmit signals for radiation of at least one output signal from a modulation transmitter having a plurality of outputs, wherein said plurality of transmit signals combine in free space to form said plurality of variable size beams;

selectively providing signal components of ones of said receive signals to ones of said demodulation receiver inputs, wherein said selectively providing step utilizes a plurality of independently operable input switching circuits each assigned to a different one of said CDMA channels;

selectively providing signal components of said at least one output signal to select ones of said transmit signals, wherein said selectively providing step utilizes a plurality of independently operable output switching circuits each assigned to a different one of said CDMA channels;

adaptively altering an attribute of select signal components of ones of said receive signals prior to providing to said demodulation receiver inputs, wherein a relative difference of said attribute of said signal components of ones of said receive signals at least in part defines a beam of said plurality of variable size beams; and

adaptively altering an attribute of ones of said signal components of said at least one output signal prior to providing to said transmit signals, wherein a relative difference of said attribute of said signal components at least in part defines a beam of said plurality of variable size beams.

36. The system of claim 35, further comprising the step of:
controlling said input switching circuits as a function of channel search data associated with ones of said receive signals.
37. The system of claim 35, further comprising the step of:
controlling said output switching circuits as a function of channel search data associated with ones of said transmit signals.
38. The system of claim 35, further comprising the step of:
providing a control signal to each of said plurality of independently operable output switching circuits to allow select ones of said modulation transmitter outputs to pass to ones of said transmit signals.
39. The system of claim 35, further comprising the step of:
providing a control signal to each of said plurality of independently operable input switching circuits to allow select ones of said receive signals to pass to a demodulation input of said plurality of demodulation receiver inputs.
40. The system of claim 35, wherein said attribute is a phase.
41. The system of claim 35, wherein said attribute is an amplitude.
42. The system of claim 35, wherein an azimuthal size of each of said variable size beams is a function of a phase differential of signal components of said transmit signals.

43. The system of claim 35, wherein a longitudinal size of each of said variable size beams is a function of an amplitude differential of signal components of said transmit signals.

44. The method of claim 35, further comprising the steps of:
converting said receive signals from a radio frequency to an intermediate frequency;
and
converting said receive signals from an analogue signal to a digital signal.

45. The method of claim 35, further comprising the steps of:
converting said transmit signals from a digital signal to an analogue signal; and
converting said transmit signals from an intermediate frequency to a radio frequency.